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# Idaho Basin Outlook Report May 1, 1999

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# Basin Outlook Reports and Federal - State - Private Cooperative Snow Surveys

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## *How forecasts are made*

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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☐ #6 - Upper Snake River Basin

☐ #7 - Southside Snake River Basins

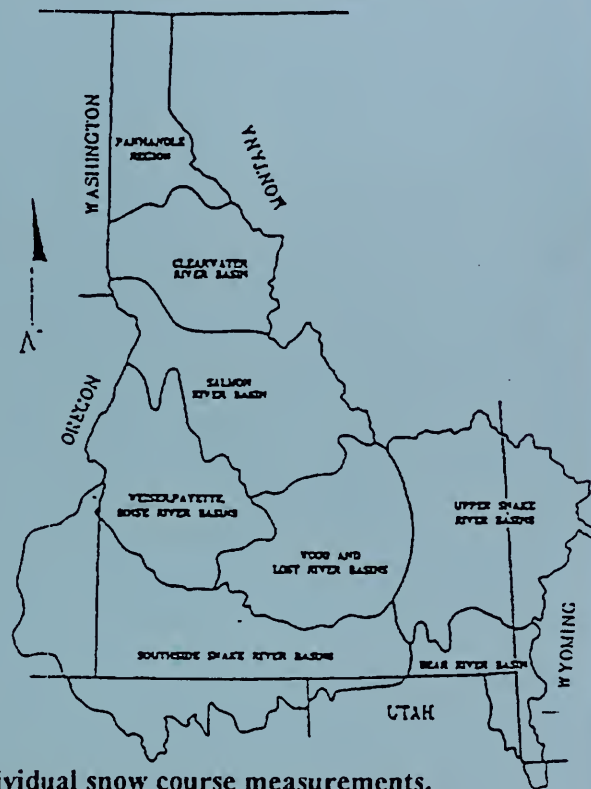
☐ #8 - Bear River Basin

☐ - Annual Data Summary Report - published after each water year: contains individual snow course measurements, snow water equivalent and precipitation data from SNOTEL (SNOW TELEmetry) stations, and the 1961-90 averages.

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# **IDAHO WATER SUPPLY OUTLOOK REPORT**

***May 1, 1999***

## **SUMMARY**

There will be plenty of water in Idaho this year, maybe too much in some areas. With nearly all river basins in Idaho reporting above average snowpacks for May 1, all streams are forecast at above normal May-July volumes except in the southwest corner of Idaho. April precipitation varied from half of normal in southwestern and northern Idaho to record high, 350% of average, in the Oakley basin. Reservoir storage varies across the state. Most reservoirs are or were drafted in preparation for the snow melt season. Oakley Reservoir is 71% full and releasing water as a result of the record April rainfall and delayed snow melt. The snowpack is around 45% density throughout the state, which means it is ripe and ready to melt when warm weather returns for a longer duration than was experienced in April.

## **SNOWPACK**

A cool, wet April slowed the snowmelt across southern Idaho and allowed many mid-elevation snow measuring stations to start accumulating again. The highest snowpack percentages are Weiser River basin at 200% of average; Priest River and Rathdrum Creek basins near 170% of average; and North Fork Payette, Raft, Portneuf, and Goose-Trapper basins at 140-150%. Elsewhere in the state, snowpacks range from 105-130% of average. Higher elevation snow measuring sites are still near or above record high levels in Boundary and Bonner Counties. Schweitzer basin SNOTEL has 85 inches of snow water, exceeding the old record of 76 inches in May of 1974 and 1975. Snow measuring sites in the North Fork Payette area remain high but are not at record high levels for May 1 due to below normal precipitation last month and some melting.

## **PRECIPITATION**

Record high precipitation amounts fell in southern Idaho. The town of Oakley, located 20 miles south of Burley, received 3.67 inches of precipitation (snow and rain) in April, average is 1.01 inches. This is the highest April amount since records started in 1921. Additional moisture also fell in early May. Southern Idaho was on the tail edge of the moisture that fell across Nevada and Utah last month. April precipitation was about half of normal in the Owhyee basin and increased to 152% of average in the Bear River basin. Elsewhere in the state, April precipitation was 125% of average in the upper Snake basin, near normal in the Wood and Lost basins, around 80% of average in the west-central mountains and Salmon basin, and half of normal in northern Idaho. Water year to date precipitation ranges from 105-120% of average across the state except in the Southside Snake River basins, which is 93% of average.

## RESERVOIRS

Reservoir storage varies across the state with some reservoirs being drafted to maintain storage when the snowmelt season gets into full swing. Starting in northern Idaho: there will be plenty of snowmelt runoff water to fill the hundreds of lakes in northern Idaho. Dworshak Reservoir is near minimum pool, 44% of gross capacity. The Payette and Boise reservoir systems are about 55% full. Magic Reservoir is 94% full while Little Wood and Mackay are 67% full. Combined reservoir storage in the 8 major upper Snake Reservoirs is 70% full. Bear Lake is 81% full and Montpelier Reservoir is 93% full. Owhyee and Wildhorse reservoirs are full and passing inflow. Salmon Falls Reservoir is just over half full. Oakley Reservoir is 71% full. On May 1, the reservoir had 54,000 acre-feet and was rising due to the record rainfall. Releases were being made from Oakley Reservoir to maintain adequate storage space when the snow starts melting.

Note: NRCS reports reservoir information in terms of usable volumes, which includes both active, inactive, and in some cases dead storage. Other operators may report reservoir contents in different terms. For additional information, see the reservoir definitions in the back of this report.

## STREAMFLOW

Nearly all streams in Idaho, except in the southwest corner of the state, are forecast at above average runoff volumes for the May-July period. Forecasts range from a low of 80% of average for the Bruneau River to 150% for Oakley Reservoir inflow and Weiser River. Streamflow forecasts increased in south central and southeastern Idaho due to the cool wet April weather. High spring and summer runoff volumes are also expected in the North Fork Payette River (132% of average) and northern Idaho where snow levels remain near or above record high levels. Warm and cool air temperatures have allowed some of the snow to start melting, but there is still plenty of snow in the mid- and higher elevations. Water users should be prepared for above average levels through the spring and summer. Timing and magnitude of peaks will depend upon May temperatures and precipitation.

## RECREATION

There will be plenty of water for recreation this year in Idaho. With nearly the entire state reporting an above average snowpack, all streams are forecast at above average volumes except the Bruneau River. The Bruneau River will still be floatable, but for a shorter period. Although the snowpack is ripe and ready to melt at mid-elevations, the high elevation snowpack has barely started to melt. As a result, many Idaho rivers that normally reach their seasonal streamflow peak in mid-May to early June will probably see the peak flows one to two weeks later this year. Streamflow levels will start rising rapidly later this month when warm or hot temperatures occur. Additional precipitation during the snowmelt period could rapidly change river levels, possibly to dangerous boating conditions if it occurs near the seasonal peak flow. The above average higher elevation snowpack, especially in the northern 2/3s of Idaho, will help extend the boating season this summer.

# IDAHO SURFACE WATER SUPPLY INDEX (SWSI)

As of May 1, 1999

The Surface Water Supply Index (SWSI) is predictive indicator of surface water availability within a watershed for the spring and summer water use season. The index is calculated by combining pre-runoff reservoir storage (carryover) with forecasts of spring and summer streamflow. SWSI values are scaled from +4.1 (abundant supply) to -4.1 (extremely dry), with a value of zero indicating a median water supply as compared to historical occurrences.

SWSI values are published January through May, and provide a more comprehensive outlook of water availability than either streamflow forecasts or reservoir storage figures alone. The SWSI index allows comparison of water availability between basins for drought or flood severity analysis. Threshold SWSI values have been established for most basins to indicate the potential for agricultural water shortages.

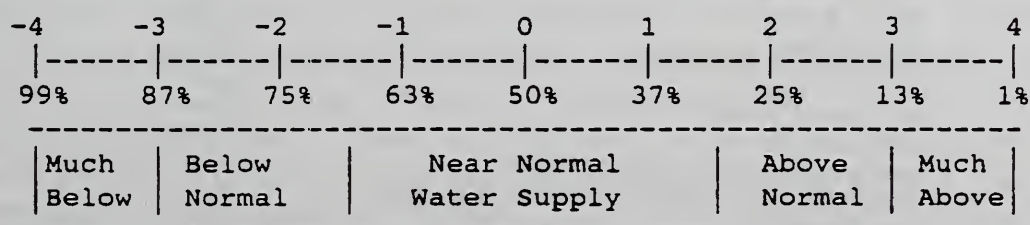
The following agencies and cooperators provide assistance in the preparation of the Surface Water Supply Index for Idaho:

US Department of Commerce, National Weather Service  
US Bureau of Reclamation  
Idaho Water Users Association

US Army Corps of Engineers  
Idaho Department of Water Resources  
PacifiCorp

Basin or Region	SWSI Value	Recent Year With Similar SWSI Value	Agricultural Water Supply Shortage May Occur When SWSI is Less Than
PANHANDLE	2.7	1982/75	NA
CLEARWATER	1.9	1996/93	NA
SALMON	2.0	1983	NA
WEISER	2.8	1982	NA
PAYETTE	1.7	1993	NA
BOISE	-0.1	1993	-2.6
BIG WOOD	1.9	1986	-1.4
LITTLE WOOD	0.8	1996	-2.1
BIG LOST	1.5	1980	-0.8
LITTLE LOST	0.7	1986	0.0
HENRYS FORK	1.5	1993	-3.3
SNAKE (AMERICAN FALLS)	1.7	1995	-2.0
OAKLEY	3.3	1976	0.0
SALMON FALLS	2.8	1980	0.0
BRUNEAU	-0.7	1978	NA
OWYHEE	3.9	1983	NA
BEAR RIVER	1.4	1982	-3.8

## SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION



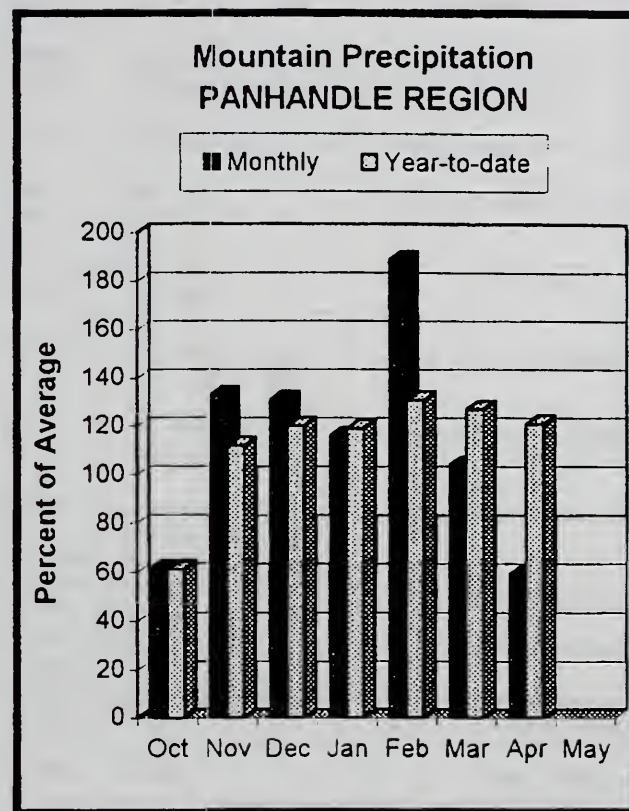
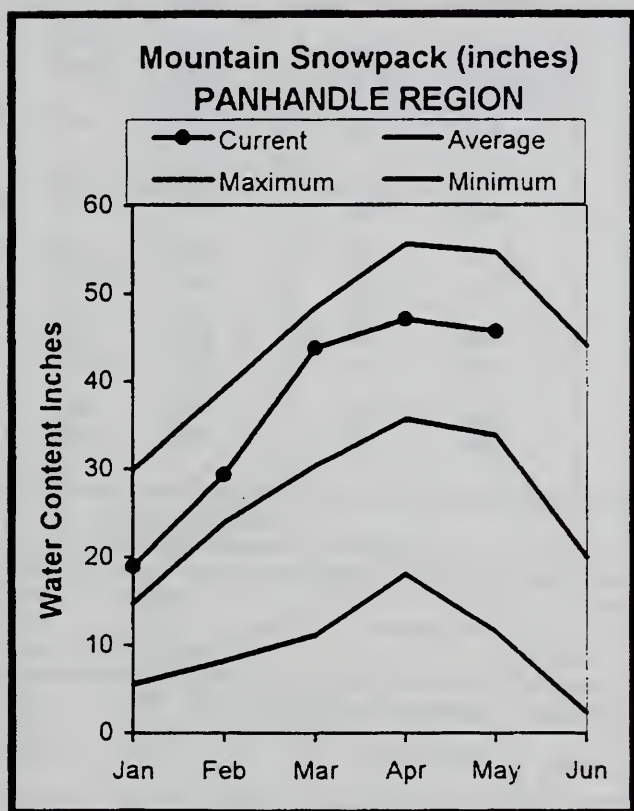
Note: The Percent Chance of Exceedance is an indicator of how often a range of SWSI values might be expected to occur. Each SWSI unit represents about 12% of the historical occurrences. As an example of interpreting the above scale, the SWSI can be expected to be greater than -3.0, 87% of the time and less than -3.0, 13% of the time. Half the time, the SWSI will be below and half the time above a value of zero. The interval between -1.5 and +1.5 described as "Near Normal Water Supply", represents three SWSI units and would be expected to occur about one third (36%) of the time.

# B A S I N - W I D E   S N O W P A C K   S U M M A R Y M A Y       1 9 9 9

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
*****		
PANHANDLE REGION		
Kootenai ab Bonners Ferry	202%	132%
Moyie River	207%	137%
Priest River	234%	171%
Pend Oreille River	178%	116%
Rathdrum Creek	415%	164%
Hayden Lake	Not available	
Coeur d'Alene River	264%	130%
St. Joe River	191%	109%
Spokane River	253%	128%
Palouse River	****%	0%
CLEARWATER RIVER BASIN		
North Fork Clearwater	222%	131%
Lochsa River	219%	129%
Selway River	179%	107%
Clearwater Basin Total	211%	126%
SALMON RIVER BASIN		
Salmon River ab Salmon	153%	120%
Lemhi River	125%	114%
Middle Fork Salmon River	164%	116%
South Fork Salmon River	164%	122%
Little Salmon River	205%	156%
Salmon Basin Total	157%	124%
WEISER, PAYETTE, BOISE RIVER BASINS		
Mann Creek	228%	258%
Weiser River	220%	201%
North Fork Payette	175%	143%
South Fork Payette	166%	111%
Payette Basin Total	169%	132%
Middle & North Fork Boise	151%	114%
South Fork Boise River	137%	115%
Mores Creek	182%	140%
Boise Basin Total	153%	120%
Canyon Creek	Not available	
WOOD AND LOST RIVER BASINS		
Big Wood ab Magic	142%	115%
Camas Creek	169%	131%
Big Wood Basin Total	144%	117%
Little Wood River	122%	122%
Fish Creek	Not available	
Big Lost River	135%	120%
Little Lost River	144%	112%
Birch-Medicine Lodge Creeks	164%	137%
Camas-Beaver Creeks	140%	144%
UPPER SNAKE RIVER BASIN		
Henry's Fork-Falls River	149%	126%
Teton River	109%	112%
Snake above Jackson Lake	133%	121%
Gros Ventre River	114%	120%
Hoback River	125%	130%
Greys River	138%	116%
Salt River	133%	110%
Snake above Palisades	129%	121%
Willow Creek	111%	103%
Blackfoot River	124%	74%
Portneuf River	92%	139%
Snake abv American Falls Resv	124%	119%
SOUTHSIDE SNAKE RIVER BASINS		
Raft River	105%	155%
Goose-Trapper Creeks	137%	141%
Salmon Falls Creek	129%	111%
Bruneau River	120%	98%
Owyhee Basin Total	129%	116%
BEAR RIVER BASIN		
Smiths & Thomas Forks	138%	121%
Bear River ab WY-ID line	125%	123%
Montpelier Creek	119%	102%
Mink Creek	110%	77%
Cub River	130%	147%
Bear River ab ID-UT line	123%	116%
Malad River	0%	*****

# PANHANDLE REGION

## MAY 1, 1999



## WATER SUPPLY OUTLOOK

Dry weather in April brought some relief to northern Idaho. April precipitation was just over half of normal and is 121% of normal for the water year. Deep snowpacks still remain in mid- to higher elevations. This year's snowpack has about 2-3 times the amount of water as in 1998. The snowpack in the Coeur d'Alene basin is 130% of average and is less than in 1997. The snowpack in the Kootenai and Moyie basins is about 135% of average. The Priest River snowpack is higher than in 1997 at 171% of average. Three high elevation snow measuring sites in the northern Panhandle are at or above record levels for May 1: Benton Spring snow course, located north of Priest River at 4,920 feet, has 28.0 inches of snow water, the same as the record high year of 1974. Bear Mountain SNOTEL site, located in the headwaters of Lightning Creek at 5,400 feet, has 100 inches of snow water which is 8 inches more than in 1997. Schweitzer Basin SNOTEL, at 6,100 feet just north of Sandpoint, has 85 inches of snow water, exceeding the old record of 76 inches in May of 1974 and 1975. The snowpack in the Pend Oreille Lake basin is 117% of average and is about 40 percentage points less than in 1997. There will be more than enough water to fill the hundreds of lakes in the Panhandle Region this summer. Streamflow forecasts are in the 130% of average range. With snow levels at or near record high levels in Boundary and Bonner counties, residents can expect an extended period of high river levels and higher May-July volumes than witnessed in 1997.

PANHANDLE REGION  
Streamflow Forecasts - May 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		===== Chance Of Exceeding * =====						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
KOOTENAI at Leonia (1,2)	MAY-JUL	5566	6360	6720	105	7080	7874	6390
	MAY-SEP	6513	7439	7860	105	8281	9207	7466
CLARK FK at Whitehorse Rpds (1,2)	MAY-JUL	9388	10634	11200	112	11766	13012	10020
	MAY-SEP	10477	11868	12500	112	13132	14523	11200
PEND OREILLE Lake Inflow (1,2)	MAY-JUL	10845	12189	12800	116	13411	14755	11070
	MAY-SEP	11930	13422	14100	115	14778	16270	12290
PRIEST nr Priest River (1,2)	MAY-SEP	620	730	780	115	830	940	680
COEUR D'ALENE at Enaville	MAY-JUL	509	578	625	132	672	741	472
	MAY-SEP	556	627	675	132	723	794	512
ST.JOE at Calder	MAY-JUL	1034	1115	1170	133	1225	1306	881
	MAY-SEP	1109	1193	1250	132	1307	1391	949
SPOKANE near Post Falls (2)	MAY-JUL	2005	2222	2370	136	2518	2735	1749
	MAY-SEP	2109	2330	2480	134	2630	2851	1846
SPOKANE at Long Lake	MAY-JUL	2218	2445	2600	132	2755	2982	1975
	MAY-SEP	2459	2692	2850	130	3008	3241	2198

PANHANDLE REGION Reservoir Storage (1000 AF) - End of April					PANHANDLE REGION Watershed Snowpack Analysis - May 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
HUNGRY HORSE	3451.0	2009.0	2551.0	2043.0	Kootenai ab Bonners Ferry	33	202	132
FLATHEAD LAKE	1791.0	884.6	829.3	937.2	Moyie River	11	207	137
NOXON RAPIDS	335.0	323.6	272.1	208.7	Priest River	4	234	171
PEND OREILLE	1561.3	916.5	931.4	927.0	Pend Oreille River	93	178	116
COEUR D'ALENE	238.5	284.5	181.5	246.7	Rathdrum Creek	2	415	164
PRIEST LAKE	119.3	107.0	108.0	97.9	Hayden Lake	0	0	0
					Coeur d'Alene River	7	264	130
					St. Joe River	2	191	109
					Spokane River	11	253	128
					Palouse River	1	0	0

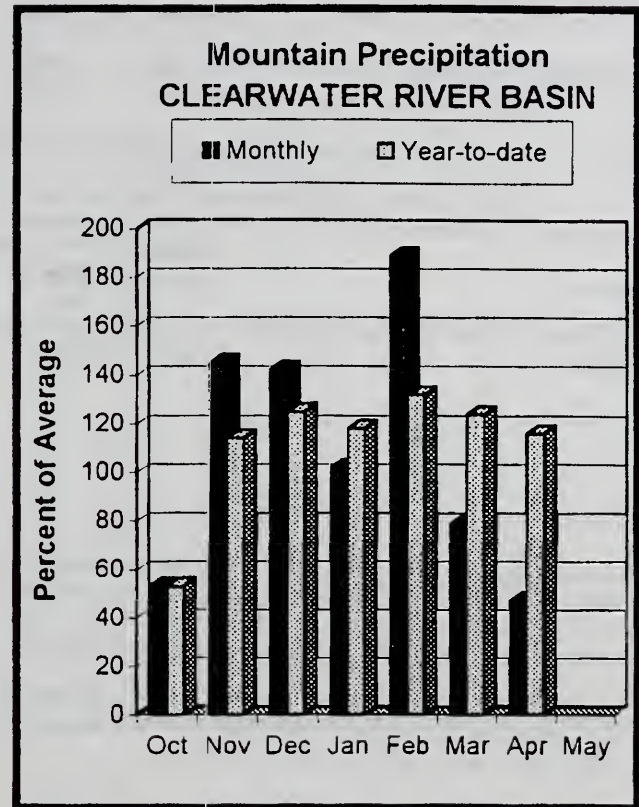
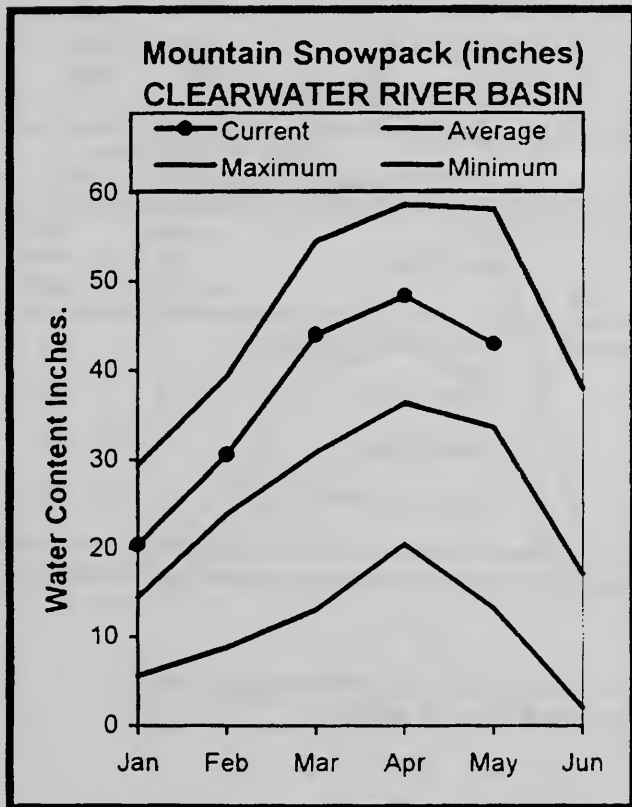
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

# CLEARWATER RIVER BASIN

## MAY 1, 1999



## WATER SUPPLY OUTLOOK

April precipitation was about half of normal and is 116% of average for the water year. The snowpack ranges from 131% of average for the North Fork Clearwater River to 107% for the Selway River. Overall the Clearwater basin snowpack is similar to 1996 at 126% of average and is much lower than the 167% of average measured on May 1, 1997. Dworshak Reservoir is near minimum pool at 44% of gross capacity. At the end of April Dworshak Reservoir had 1,529,300 acre-feet, which is about 75,000 acre-feet above minimum pool. May-July inflow forecast for Dworshak Reservoir is for 2,580,000 acre-feet, 127% of average. The Clearwater River at Orofino is forecast at 118% of average. Water users can expect river levels to remain above normal until after the recession of the snow melt streamflow peak. Water users can also expect a shorter period of high flows than in 1997 as a result of less snow in the mountains. Temperatures and precipitation in the latter half of May, which is typically in the middle of the snow melt season, will determine magnitude of peak flows.

CLEARWATER RIVER BASIN  
Streamflow Forecasts - May 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
DWORSHAK RESV INFLOW (1,2)	MAY-JUL	2140	2443	2580	127	2717	3020	2028
	MAY-SEP	2340	2650	2790	127	2930	3240	2200
CLEARWATER at Orofino (1)	MAY-JUL	3580	4226	4520	118	4814	5460	3831
	MAY-SEP	3735	4426	4740	116	5054	5745	4089
CLEARWATER at Spalding (1,2)	MAY-JUL	6042	6921	7320	123	7719	8598	5972
	MAY-SEP	6457	7401	7830	122	8259	9203	6405

CLEARWATER RIVER BASIN Reservoir Storage (1000 AF) - End of April					CLEARWATER RIVER BASIN Watershed Snowpack Analysis - May 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of =====	
		This Year	Last Year	Avg			Last Yr	Average
DWORSHAK	3468.0	1529.3	2822.7	2309.0	North Fork Clearwater	9	222	131
					Lochsa River	2	219	129
					Selway River	4	179	107
					Clearwater Basin Total	14	211	126

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

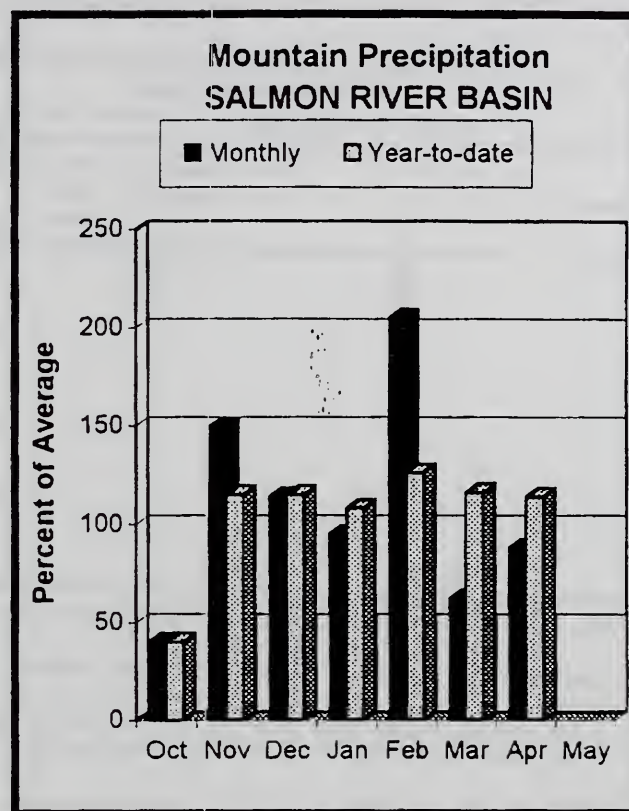
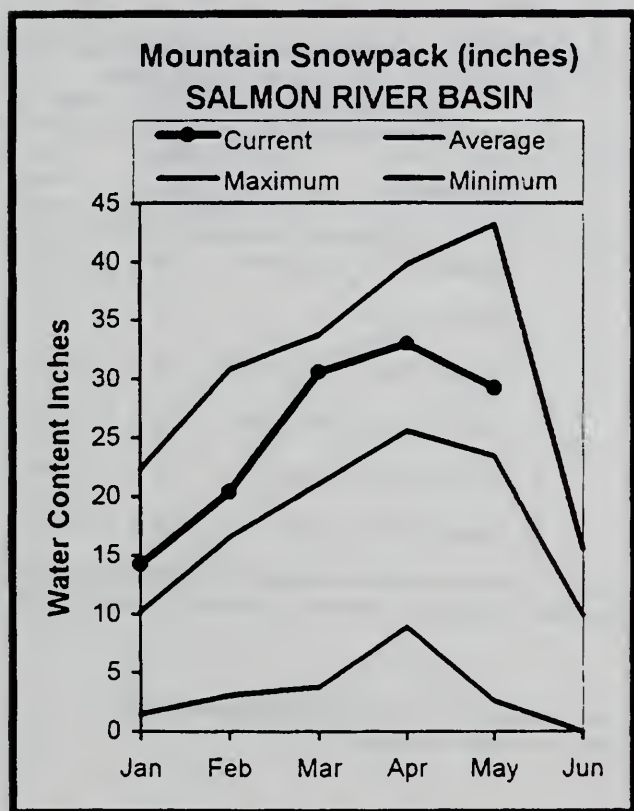
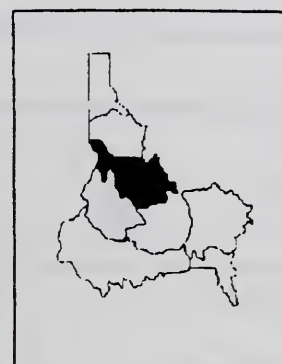
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

# SALMON RIVER BASIN

## MAY 1, 1999



## WATER SUPPLY OUTLOOK

April precipitation was 88% of average and is 114% for the water year. Most snow measuring stations from the Little Salmon to the Middle Fork showed a decrease in snow water content between April 1 and May 1. However, stations in the Lemhi basin continued increasing. Snowpack percentages are 114% of average in the Lemhi, 116% for the Middle Fork, 122% for the South Fork, and 156% for the Little Salmon. Overall the Salmon River snowpack is 124% of average; in 1997 the snowpack was 145% of average. The Little Salmon basin snowpack is the highest since 1984. Based upon a 4 station snow index for the Middle Fork Salmon River, other years with a similar combined snow water content are 1996, 1983 and 1986. Streamflow forecasts are for 115% of average for the Salmon River above Salmon and 113% for the Salmon River near White Bird. The timing of the runoff and magnitude of the peak is dependent on how the snow melts from here on out and whether there is significant rainfall during the critical snowmelt period. With the snowpack at 30% above average, there is still the potential for high peak flows. River runners can expect a shorter high water season than in 1997, and should use caution until after the snow melt seasonal peak has passed. The above normal snowpack will help provide an extended boating season.

SALMON RIVER BASIN  
Streamflow Forecasts - May 1, 1999

		<===== Drier ===== Future Conditions ===== Wetter =====>						
Forecast Point	Forecast Period	=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
SALMON at Salmon (1)	MAY-JUL	600	798	888	115	978	1176	772
	MAY-SEP	716	952	1060	115	1168	1404	922
SALMON at White Bird (1)	MAY-JUL	4853	5628	5980	113	6332	7107	5284
	MAY-SEP	5457	6326	6720	113	7114	7983	5930

SALMON RIVER BASIN Reservoir Storage (1000 AF) - End of April					SALMON RIVER BASIN Watershed Snowpack Analysis - May 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of =====	
		This Year	Last Year	Avg			Last Yr	Average
					Salmon River ab Salmon	8	153	120
					Lemhi River	5	125	114
					Middle Fork Salmon River	3	164	116
					South Fork Salmon River	3	164	122
					Little Salmon River	4	205	156
					Salmon Basin Total	24	157	124

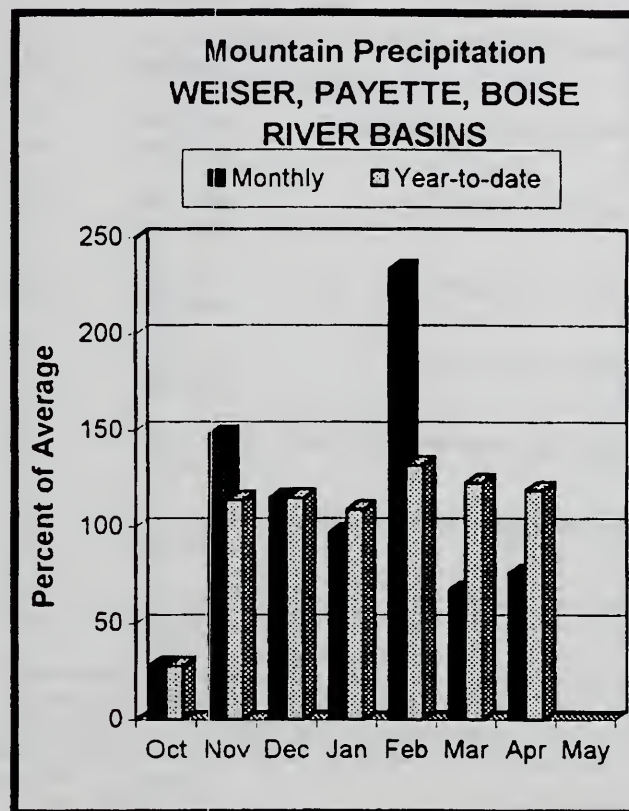
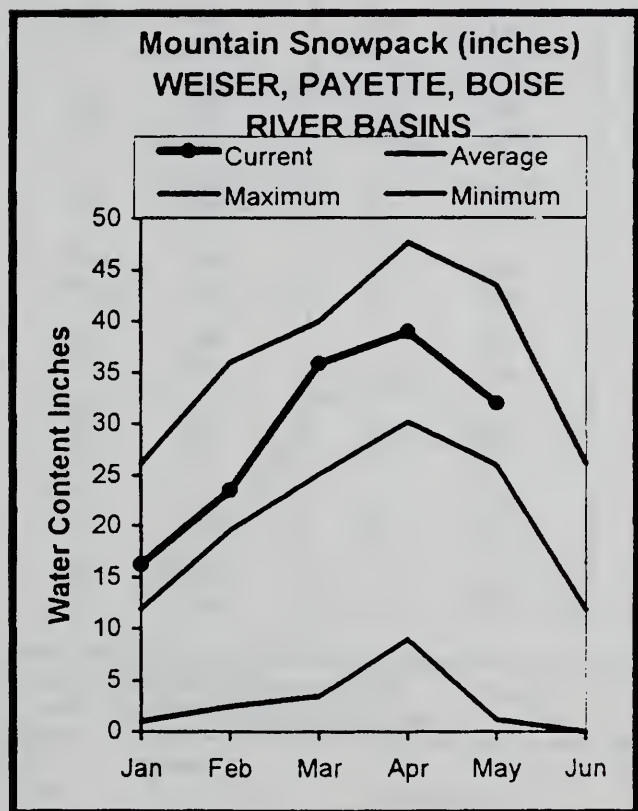
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

# WEISER, PAYETTE, BOISE RIVER BASINS MAY 1, 1999



## WATER SUPPLY OUTLOOK

April brought precipitation that was about 75% of average in these central Idaho basins. Water year to date precipitation is 119% of average. The North Fork Payette basin snowpack is 143% of average, highest since 1983. The Weiser River snowpack is 200% of average which is about the same as in 1997 and double last year. The Boise basin snowpack is 120% of average. Bogus Basin snow course has 29 inches of water, the most since 1984. Reservoir storage in the Payette system is 56% of capacity. The Boise reservoir system is 52% of capacity. Streamflow forecasts call for 132% of average for the North Fork Payette River, 148% for the Weiser River and 115% for the Boise River. Water supplies will be plentiful this year. Access to high country recreation areas may be delayed due to the high snowpack, the current snow level is about 5,800 feet in elevation.

WEISER, PAYETTE, BOISE RIVER BASINS  
Streamflow Forecasts - May 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
WEISER nr Weiser (1)	MAY-JUL	231	327	370	148	413	509	250
SF PAYETTE at Lowman	MAY-JUL	384	409	426	114	443	468	375
	MAY-SEP	445	472	490	114	508	535	431
DEADWOOD RESERVOIR Inflow (1,2)	MAY-JUL	121	136	143	119	150	165	120
	MAY-SEP	127	143	150	118	157	173	127
NF PAYETTE nr Cascade (1,2)	MAY-JUL	441	507	537	132	567	633	407
	MAY-SEP	482	553	585	132	617	688	442
NF PAYETTE nr Banks (2)	MAY-JUL	573	635	677	132	719	781	512
	MAY-SEP	617	684	730	132	776	843	554
PAYETTE nr Horseshoe Bend (1,2)	MAY-JUL	1382	1549	1625	125	1701	1868	1304
	MAY-SEP	1525	1707	1790	124	1873	2055	1442
BOISE near Twin Springs (1)	MAY-JUL	504	563	590	116	617	676	509
	MAY-SEP	557	621	650	115	679	743	564
SF BOISE at Anderson Ranch Dam (1,2)	MAY-JUL	390	455	485	112	515	580	432
	MAY-SEP	419	488	520	111	552	621	469
MORES CREEK near Arrowrock Dam	MAY-JUL	67	78	86	112	94	105	77
	MAY-SEP	72	84	92	112	100	112	82
BOISE near Boise (1,2)	MAY-JUL	1044	1186	1250	115	1314	1456	1090
	MAY-SEP	1157	1307	1375	114	1443	1593	1204

WEISER, PAYETTE, BOISE RIVER BASINS Reservoir Storage (1000 AF) - End of April					WEISER, PAYETTE, BOISE RIVER BASINS Watershed Snowpack Analysis - May 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
MANN CREEK	11.1	10.6	11.0	10.2	Mann Creek	1	228	258
CASCADE	703.2	399.1	572.9	430.6	Weiser River	3	220	201
DEADWOOD	161.9	82.6	126.3	102.8	North Fork Payette	8	175	143
ANDERSON RANCH	464.2	274.2	363.1	327.0	South Fork Payette	4	166	111
ARROWROCK	286.6	115.5	278.1	204.0	Payette Basin Total	13	169	132
LUCKY PEAK	293.2	148.0	246.0	195.5	Middle & North Fork Boise	6	151	114
LAKE LOWELL (DEER FLAT)	177.1	147.0	134.9	155.5	South Fork Boise River	6	137	115
					Mores Creek	3	162	140
					Boise Basin Total	11	153	120
					Canyon Creek	0	0	0

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

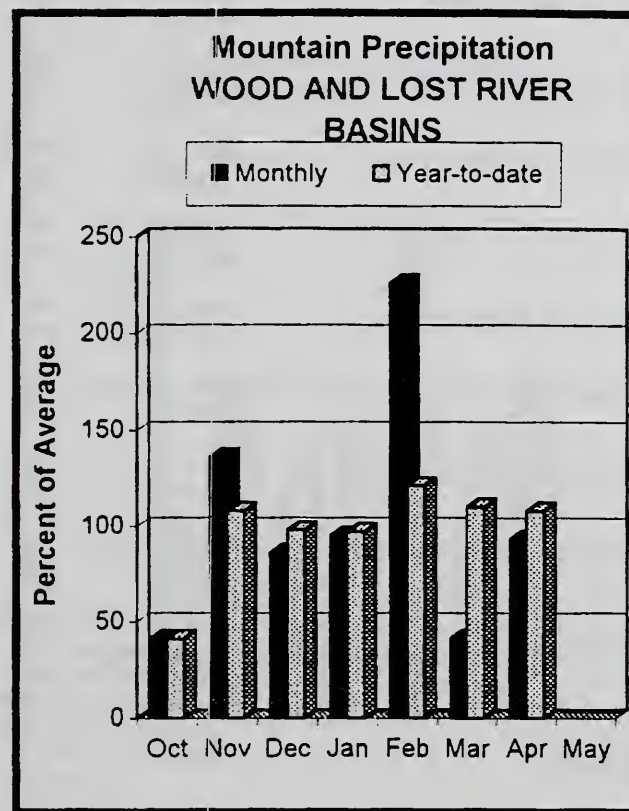
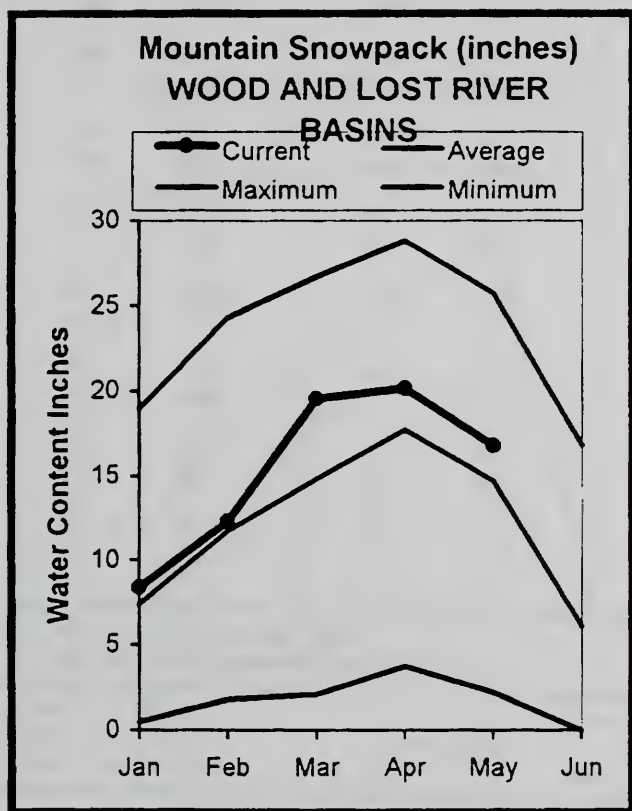
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

# WOOD and LOST RIVER BASINS

## MAY 1, 1999



## WATER SUPPLY OUTLOOK

April precipitation was 93% of average. Water year to date precipitation is 108% of average. Overall, snowpack percentages are about the same as last month. Snowpack percentages range from 112% of average in the Little Lost River basin to 131% in the Camas Creek basin above Magic Reservoir. Magic Reservoir is 94% full while Little Wood and Mackay are each about 67% full. Streamflow forecasts call for 132% of average for Big Wood River below Magic Reservoir. The Little Wood River is forecast at 129% of average. Mackay Reservoir inflow is forecast at 116% of average. Water supplies will be more than adequate this year. May temperatures and precipitation will determine the magnitude and timing of peak flows.

WOOD AND LOST RIVER BASINS  
Streamflow Forecasts - May 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		Chance Of Exceeding *						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
BIG WOOD at Hailey (1)	MAY-JUL	231	264	280	125	296	334	224
	MAY-SEP	267	303	320	125	338	378	257
BIG WOOD near Bellevue	MAY-JUL	157	179	195	125	212	237	156
	MAY-SEP	173	196	213	125	231	258	170
CAMAS CREEK near Blaine	MAY-JUL	39	46	51	122	56	65	42
	MAY-SEP	39	47	52	121	57	66	43
BIG WOOD below Magic Dam (2)	MAY-JUL	221	247	265	132	283	309	201
	MAY-SEP	242	271	290	134	309	338	216
LITTLE WOOD near Carey (2)	MAY-JUL	66	77	84	129	91	102	65
	MAY-SEP	76	87	95	130	103	114	73
BIG LOST at Howell Ranch	MAY-JUL	174	188	198	117	208	222	169
	MAY-SEP	200	217	228	117	239	256	195
BIG LOST below Mackay Reservoir (2)	MAY-JUL	137	151	161	116	171	185	139
	MAY-SEP	170	186	196	115	206	222	171
LITTLE LOST blw Wet Creek	MAY-JUL	23	27	30	111	33	37	27
	MAY-SEP	30	35	39	111	43	48	35
LITTLE LOST nr Howe (Disc)	MAY-JUL	28	30	31	115	32	34	27
	MAY-SEP	38	41	44	115	46	49	38

WOOD AND LOST RIVER BASINS Reservoir Storage (1000 AF) - End of April					WOOD AND LOST RIVER BASINS Watershed Snowpack Analysis - May 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
MAGIC	191.5	179.9	183.8	159.9	Big Wood ab Magic	7	142	115
LITTLE WOOD	30.0	20.1	25.9	25.2	Camas Creek	2	169	131
MACKAY	44.4	30.4	42.7	34.3	Big Wood Basin Total	9	144	117
					Little Wood River	3	122	122
					Fish Creek	0	0	0
					Big Lost River	5	135	120
					Little Lost River	3	144	112
					Birch-Medicine Lodge Cree	2	164	137

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

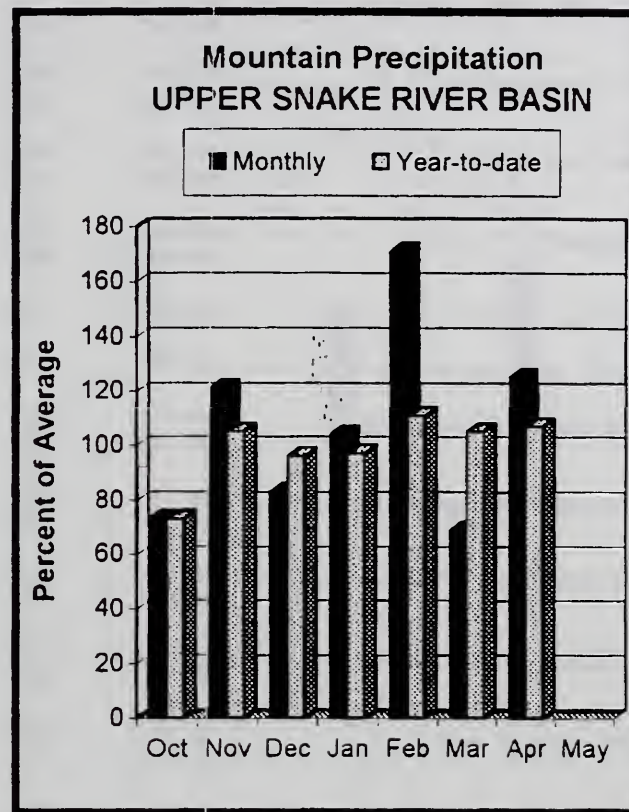
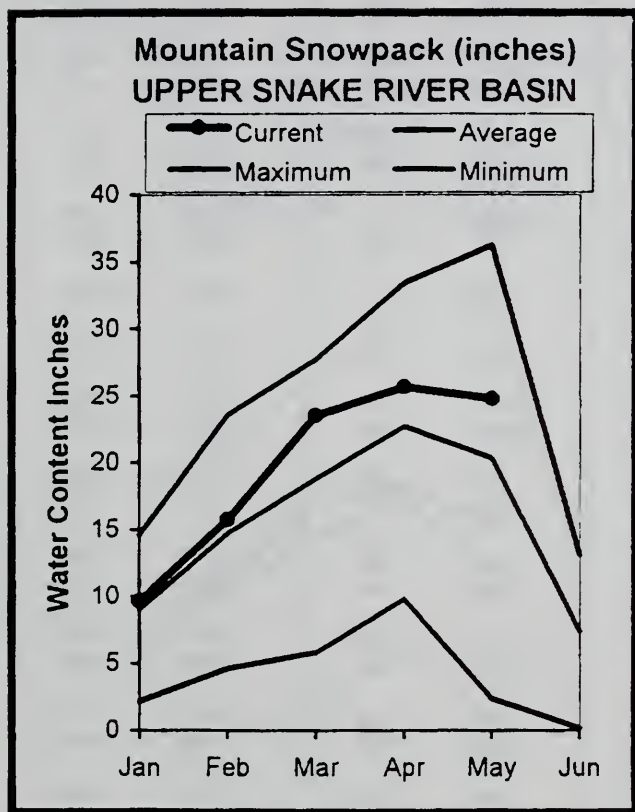
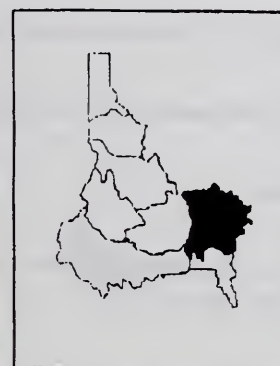
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

# UPPER SNAKE RIVER BASIN

## MAY 1, 1999



## WATER SUPPLY OUTLOOK

April precipitation was greatest in the southern part of the basin (200% of average) and near normal in the northern part. Precipitation for the water year is 107% of average overall. Snowpacks remain in the 110-130% of average range, except in the Willow Creek and Blackfoot River basins which are 103% and 74% of average, respectively. Rain and warm temperatures brought the Henrys Fork River to flood stage in early May. Additional high flows are possible as a result of the 126% of average snowpack. The rain has reduced irrigation demand; warm drier weather is needed. Henrys Fork, Island Park and Grassy Lake reservoirs have a combined April 30 reservoir storage of 88% of capacity. The mainstem Snake River reservoirs have a combined storage of 68% of capacity. Streamflow forecasts call for 105-125% of average runoff. Water supplies will be more than adequate this season to meet the needs of the numerous and diverse water users.

UPPER SNAKE RIVER BASIN  
Streamflow Forecasts - May 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		=====		Chance Of Exceeding *		=====		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
HENRYS FORK near Ashton (2)	MAY-JUL	401	445	475	110	505	549	432
	MAY-SEP	584	638	675	109	712	766	618
HENRYS FORK near Rexburg (2)	MAY-JUL	968	1071	1141	112	1211	1314	1016
	MAY-SEP	1300	1419	1500	112	1581	1700	1339
FALLS near Squirrel (1,2)	MAY-JUL	284	329	350	109	371	416	322
	MAY-SEP	353	399	420	108	441	487	390
TETON near Driggs	MAY-JUL	127	142	152	117	162	177	130
	MAY-SEP	174	193	205	116	217	236	177
TETON near St. Anthony	MAY-JUL	314	344	365	111	386	416	330
	MAY-SEP	385	422	447	109	472	509	410
SNAKE near Moran (1,2)	MAY-SEP	818	905	945	116	985	1072	814
PACIFIC CREEK at Moran	MAY-SEP	154	171	182	116	193	210	157
SNAKE above Palisades (2)	MAY-JUL	2446	2565	2645	125	2725	2844	2115
	MAY-SEP	2859	3000	3095	125	3190	3331	2475
GREYS above Palisades	MAY-JUL	286	307	322	109	337	358	295
	MAY-SEP	338	362	378	108	394	418	350
SALT near Etna	MAY-JUL	219	253	276	106	299	333	260
	MAY-SEP	297	335	360	106	385	423	339
PALISADES RESERVOIR INFLOW (1,2)	MAY-JUL	3120	3395	3520	122	3645	3920	2891
	MAY-SEP	3677	3995	4140	121	4285	4603	3428
SNAKE near Heise (2)	MAY-JUL	3399	3599	3735	122	3871	4071	3074
	MAY-SEP	4041	4272	4430	121	4588	4819	3672
SNAKE nr Blackfoot (1,2)	MAY-JUL	3856	4519	4820	121	5121	5784	3981
	MAY-SEP	4932	5648	5973	119	6298	7014	5019
PORTNEUF at Topaz	MAY-JUL	48	55	60	109	65	72	55
	MAY-SEP	74	79	83	109	87	92	76
AMERICAN FALLS RESV INFLOW (1,2)	MAY-JUL	2286	2956	3260	132	3564	4234	2463
	MAY-SEP	2311	3170	3560	132	3950	4809	2700

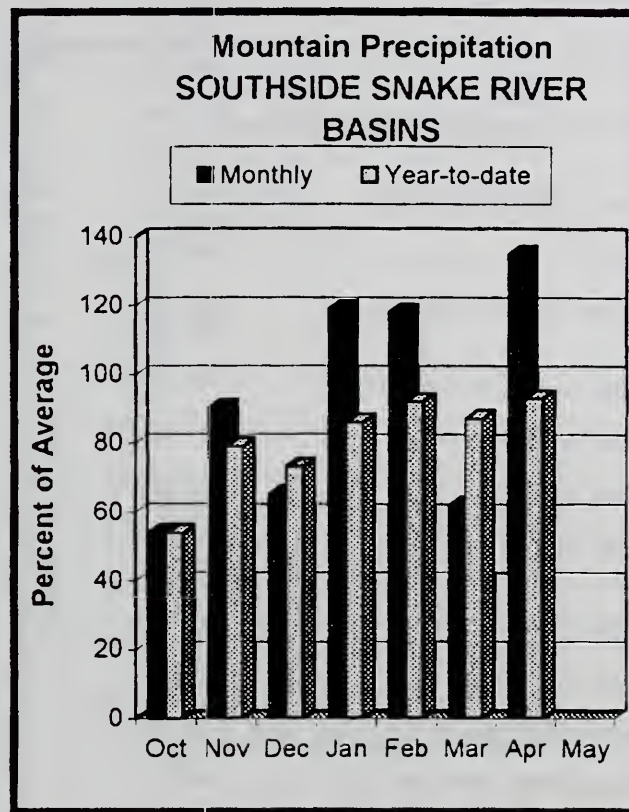
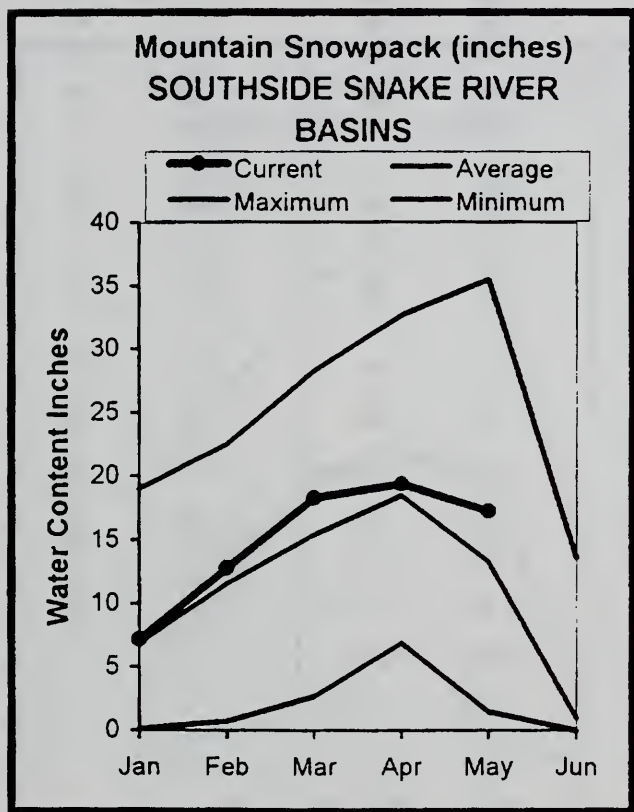
UPPER SNAKE RIVER BASIN Reservoir Storage (1000 AF) - End of April					UPPER SNAKE RIVER BASIN Watershed Snowpack Analysis - May 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
HENRYS LAKE	90.4	84.9	90.2	82.3	Camas-Beaver Creeks	2	140	144
ISLAND PARK	135.2	113.7	130.4	125.7	Henrys Fork-Falls River	10	149	126
GRASSY LAKE	15.2	13.4	7.5	11.7	Teton River	8	109	112
JACKSON LAKE	847.0	533.1	663.2	456.5	SNAKE above Jackson Lake	6	133	121
PALISADES	1400.0	555.4	910.6	950.0	Gros Ventre River	3	114	120
RIRIE	80.5	68.1	66.2	53.5	Hoback River	6	125	130
BLACKFOOT	348.7	288.4	305.6	273.0	Greys River	4	138	116
AMERICAN FALLS	1672.6	1571.1	1550.9	1547.0	Salt River	5	133	110
					SNAKE above Palisades	25	129	121
					Willow Creek	6	111	103
					Blackfoot River	2	124	74
					Portneuf River	3	92	139
					SNAKE abv American Falls	35	124	119

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table. The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

# SOUTHSIDE SNAKE RIVER BASINS MAY 1, 1999



## WATER SUPPLY OUTLOOK

April precipitation was half of normal in the Owyhee basin and increased to 2-3 times normal in the Oakley/Raft River area. Oakley received 3.67 inches of precipitation in April, which is a new record for April since measurements started in 1917. Additional moisture fell in early May, further saturating the soil and increasing runoff levels in the basin. Mid-elevation SNOTEL sites in the Goose Creek basin, Bostetter RS and Magic Mountain, are at their third snow water content peak this year. These sites peaked in snow water content levels around March 15, April 15 and May 5. Each site lost about 2-3 inches of snow water and gained it back with each series of storms. Howell Canyon, a higher elevation site, continued increasing and now has 29 inches of snow water. As of May 1, the snowpack was 155% of average in the Raft basin, 141% in Goose Creek, 111% in Salmon Falls, 116% in the Owyhee, and normal in the Bruneau basin. Oakley Reservoir was at 52,000 acre-feet on April 30 and increasing as a result of the record rainfall. Releases are being made in anticipation of higher runoff to come. With mid- and high elevation snow melt being delayed because of the cool, wet weather, higher runoff volumes are expected when the snow starts melting due to the saturated soil conditions. The May-July forecast for Oakley Reservoir inflow is for 30,000 acre-feet, 150% of average. There is concern in dealing with excess water from Oakley Reservoir, especially if the mid- and higher elevation snow melt combine to form one peak rather than multiple peaks. Salmon Falls Reservoir is 55% full and has 80,000 acre-feet of storage available. Salmon Falls Creek is forecast at 55,700 acre-feet. Owyhee and Wildhorse reservoirs are full and passing inflow.

SOUTHSIDE SNAKE RIVER BASINS  
Streamflow Forecasts - May 1, 1999

		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	Chance Of Exceeding *						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
=====								
OAKLEY RESV INFLOW	MAY-JUL	22	27	30	150	34	39	20
	MAY-SEP	26	31	34	148	38	44	23
OAKLEY RESV STORAGE	MAY-31	60	63	65	161	67	70	41
	JUN-30	41	46	49	134	52	57	37
	JUL-31	30	33	36	134	39	43	27
	JUL-31	30	33	36	134	39	43	27
SALMON FALLS CREEK nr San Jacinto	MAY-JUL	39	49	56	98	63	75	57
	MAY-SEP	43	53	60	98	68	80	62
SALMON FALLS RESV STORAGE	MAY-31	99	106	110	119	115	122	93
	JUN-30	80	92	100	113	108	120	89
	JUL-31	55	66	74	116	82	93	64
BRUNEAU near Hot Springs	MAY-JUL	85	111	130	80	151	184	162
	MAY-SEP	93	120	140	81	162	197	173
OWYHEE near Gold Creek (2)	MAY-JUL	1.8	4.8	7.7	63	11.2	17.6	12.2
OWYHEE nr Owyhee (2)	MAY-JUL	13.6	29	40	68	50	65	58
OWYHEE near Rome	MAY-JUL	158	189	212	106	236	273	200
OWYHEE RESV INFLOW (2)	MAY-JUL	182	213	235	112	258	294	210
	MAY-SEP	210	243	266	112	290	328	238
SUCCOR CK nr Jordan Valley	MAY-JUL	5.48	8.09	9.87	194	11.65	14.26	5.10
SNAKE RIVER at King Hill (1,2)	MAY-JUL			2240	110			2038
SNAKE RIVER near Murphy (1,2)	MAY-JUL			2310	111			2077
SNAKE RIVER at Weiser (1,2)	MAY-JUL			4670	123			3793
SNAKE RIVER at Hells Canyon Dam (1,2	MAY-JUL			5240	123			4276
SNAKE blw Lower Granite Dam (1,2)	MAY-JUL	17010	19272	20300	120	21328	23590	16940
	MAY-SEP	19795	22412	23600	120	24788	27405	19650

SOUTHSIDE SNAKE RIVER BASINS Reservoir Storage (1000 AF) - End of April					SOUTHSIDE SNAKE RIVER BASINS Watershed Snowpack Analysis - May 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
OAKLEY	74.5	53.0	51.9	38.0	Raft River	1	105	155
SALMON FALLS	182.6	100.8	99.9	81.9	Goose-Trapper Creeks	3	137	141
WILDHORSE RESERVOIR	71.5	70.1	72.5	47.2	Salmon Falls Creek	5	129	111
OWYHEE	715.0	719.1	652.5	619.0	Bruneau River	5	120	98
BROWNLEE	1419.3	543.6	1365.4	1007.0	Owyhee Basin Total	7	129	116

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

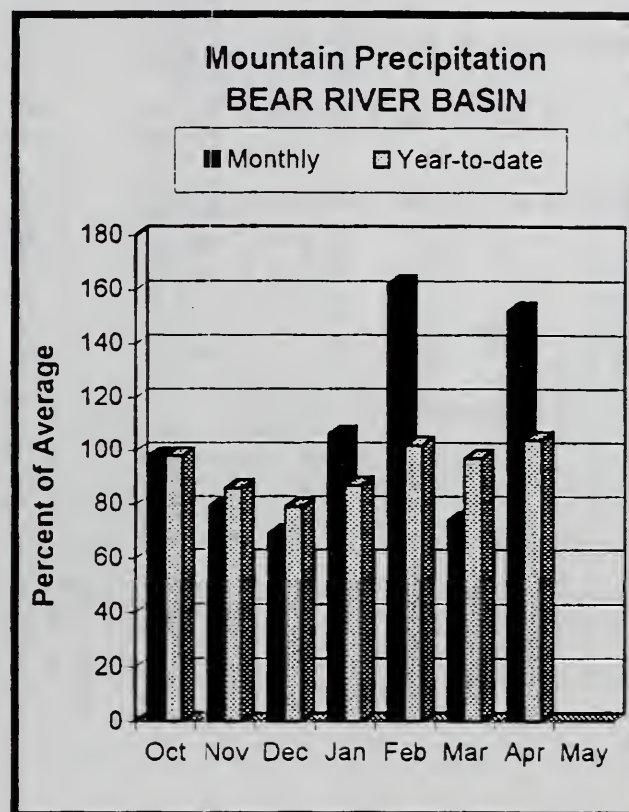
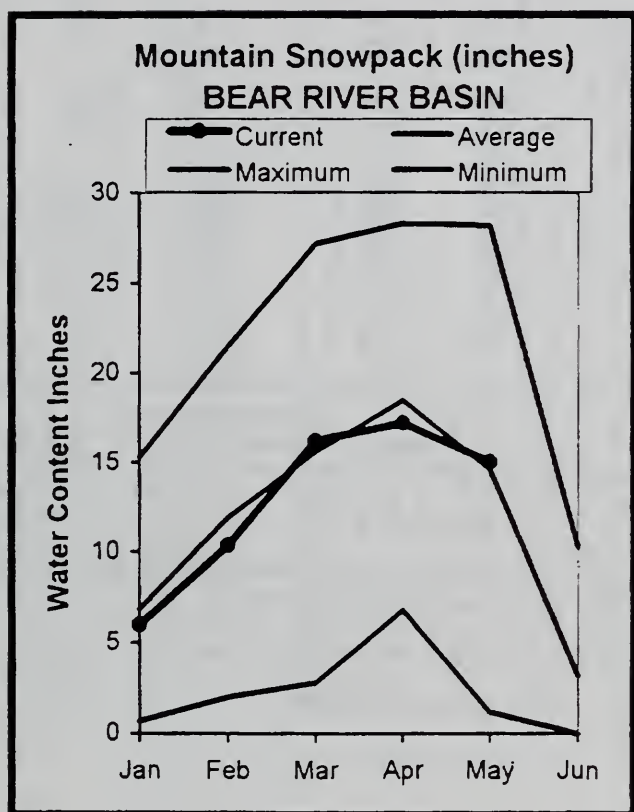
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and .95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

# BEAR RIVER BASIN

## MAY 1, 1999



## WATER SUPPLY OUTLOOK

April precipitation in the Bear River basin was 1 1/2 times normal, the highest percentage in the state. Water year to date precipitation is normal thus far. The snowpack started melting in mid-April, but cool and wet weather in late April and early May slowed the melt. After having a snowpack that was near to slightly below normal all season, the snowpack is now above average and is roughly the same as last year at this time. The snowpack in the higher elevation drainage of Cub River is 147% of average. Overall the Bear River basin snowpack above the Idaho-Utah state line is 116% of average. Streamflow forecasts also increased from last month and now call for near normal volumes for the remaining May - July runoff season. Bear Lake is 81% full and Montpelier is 93% full. Small reservoir operators should maintain adequate storage space until after the snow melt streamflow peaks have passed.

BEAR RIVER BASIN  
Streamflow Forecasts - May 1, 1999

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		=====		Chance Of Exceeding *		=====		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
BEAR R nr Randolph, UT	MAY-JUL	47	74	92	105	110	137	88
	MAY-SEP	49	80	101	104	122	153	97
SMITHS FK nr Border, WY	MAY-JUL	76	89	99	108	110	129	92
	MAY-SEP	93	107	118	108	130	150	109
THOMAS FK nr WY-ID State Line (Disc.	MAY-JUL	17.3	23	28	104	34	45	27
	MAY-SEP	19.7	26	31	103	37	49	30
BEAR R blw Stewart Dam nr Montpelier	MAY-JUL	162	206	235	104	264	308	225
	MAY-SEP	190	241	275	104	309	360	264
MONTPELIER CK nr Montpelier (Disc)(2	APR-JUL	8.6	10.6	12.2	100	14.0	17.3	12.2
	APR-SEP	10.5	12.7	14.4	101	16.4	19.8	14.2
	MAY-JUL	6.33	7.96	9.30	102	10.87	13.67	9.10
	MAY-SEP	7.7	9.5	10.9	103	12.5	15.4	10.6
CUB R nr Preston	APR-JUL	40	45	48	102	51	56	47
	MAY-JUL	37	42	45	105	48	53	43

BEAR RIVER BASIN Reservoir Storage (1000 AF) - End of April					BEAR RIVER BASIN Watershed Snowpack Analysis - May 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BEAR LAKE	1421.0	1145.4	1147.0	1052.0	Smiths & Thomas Forks	4	138	121
MONTPELIER CREEK	4.0	3.7	4.0	2.2	Bear River ab WY-ID line	10	125	123
					Montpelier Creek	2	119	102
					Mink Creek	1	110	77
					Cub River	1	130	147
					Bear River ab ID-UT line	17	123	116
					Malad River	1	0	0

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

**Streamflow Adjustment List For All Forecasts Published In Idaho Basin Outlook Report** Streamflow forecasts are projections of runoff volumes that would have occurred naturally without influences from upstream reservoirs or diversions. These values are referred to as natural or adjusted flows. To make these adjustments, changes in reservoir storage, diversions, and inter-basin transfers are added or subtracted from the observed (actual) streamflow volumes. The following list documents the adjustments made to each forecast point in this report. (Revised October 1998)

#### **Panhandle River Basins**

KOOTENAI R AT LEONIA, ID  
 + LAKE KOOCANUSA (STORAGE CHANGE)  
 CLARK FORK AT WHITEHORSE RAPIDS, ID  
 + HUNGRY HORSE (STORAGE CHANGE)  
 + FLATHEAD LAKE (STORAGE CHANGE)  
 + NOXON RAPIDS RESV (STORAGE CHANGE)  
 PEND OREILLE LAKE INFLOW, ID  
 + PEND OREILLE R AT NEWPORT, WA  
 + HUNGRY HORSE (STORAGE CHANGE)  
 + FLATHEAD LAKE (STORAGE CHANGE)  
 + NOXON RAPIDS (STORAGE CHANGE)  
 + PEND OREILLE LAKE (STORAGE CHANGE)  
 PRIEST R NR PRIEST R, ID  
 + PRIEST LAKE (STORAGE CHANGE)  
 COEUR D'ALENE R AT ENAVILLE, ID - No Corrections  
 ST. JOE R AT CALDER, ID - No Corrections  
 SPOKANE R NR POST FALLS, ID  
 + COEUR D'ALENE LAKE (STORAGE CHANGE)  
 SPOKANE R AT LONG LAKE, WA  
 + COEUR D'ALENE LAKE (STORAGE CHANGE)  
 + LONG LAKE, WA (STORAGE CHANGE)

#### **Clearwater River Basin**

DWORSHAK RESERVOIR INFLOW, ID  
 + DWORSHAK RESV (STORAGE CHANGE)  
 - CLEARWATER R AT OROFINO, ID  
 + CLEARWATER R NR PECK, ID  
 CLEARWATER R AT OROFINO, ID - No Corrections  
 CLEARWATER R AT SPALDING, ID  
 + DWORSHAK RESV (STORAGE CHANGE)

#### **Salmon River Basin**

SALMON R AT SALMON, ID - No Corrections  
 SALMON R AT WHITE BIRD, ID - No Corrections

#### **Weiser, Payette, Boise River Basins**

WEISER R NR WEISER, ID - No Corrections  
 SF PAYETTE R AT LOWMAN, ID - No Corrections  
 DEADWOOD RESERVOIR INFLOW, ID  
 + DEADWOOD R BLW DEADWOOD RESV NR LOWMAN  
 + DEADWOOD RESV (STORAGE CHANGE)  
 NF PAYETTE R AT CASCADE, ID  
 + CASCADE RESV (STORAGE CHANGE)  
 NF PAYETTE R NR BANKS, ID  
 + CASCADE RESV (STORAGE CHANGE)

#### **PAYETTE R NR HORSESHOE BEND, ID**

+ DEADWOOD RESV (STORAGE CHANGE)  
 + CASCADE RESV (STORAGE CHANGE)  
 BOISE R NR TWIN SPRINGS, ID - No Corrections  
 SF BOISE R AT ANDERSON RANCH DAM, ID  
 + ANDERSON RANCH RESV (STORAGE CHANGE)  
 BOISE R NR BOISE, ID  
 + ANDERSON RANCH RESV (STORAGE CHANGE)  
 + ARROWROCK RESV (STORAGE CHANGE)  
 + LUCKY PEAK RESV (STORAGE CHANGE)

#### **Wood and Lost River Basins**

BIG WOOD R AT HAILEY, ID - No Corrections  
 BIG WOOD R NR BELLEVUE, ID - No Corrections  
 BIG WOOD R BLW MAGIC DAM NR RICHFIELD, ID  
 + MAGIC RESV (STORAGE CHANGE)  
 LITTLE WOOD R NR CAREY, ID  
 + LITTLE WOOD RESV (STORAGE CHANGE)  
 BIG LOST R AT HOWELL RANCH NR CHILLY, ID - No Corrections  
 BIG LOST R BLW MACKAY RESV NR MACKAY, ID  
 + MACKAY RESV (STORAGE CHANGE)  
 LITTLE LOST R BLW WET CK NR HOWE, ID - No Corrections  
 LITTLE LOST R NR HOWE, ID - No Corrections (Disc)

#### **Upper Snake River Basin**

HENRYS FORK NR ASHTON, ID  
 + HENRYS LAKE (STORAGE CHANGE)  
 + ISLAND PARK RESV (STORAGE CHANGE)  
 HENRYS FORK NR REXBURG, ID  
 + HENRYS LAKE (STORAGE CHANGE)  
 + ISLAND PARK RESV (STORAGE CHANGE)  
 + DIV FM HENRYS FK BTW ASHTON & ST. ANTHONY, ID  
 + DIV FM HENRYS FK BTW ST. ANTHONY & REXBURG, ID  
 + GRASSY LAKE (STORAGE CHANGE)  
 FALLS R ABV YELLOWSTONE CANAL NR SQUIRREL, ID  
 + GRASSY LAKE (STORAGE CHANGE)  
 TETON R ABV SO LEIGH CK NR DRIGGS, ID - No Corrections  
 TETON R NR ST. ANTHONY, ID  
 - CROSS CUT CANAL  
 + SUM OF DIVERSIONS ABV GAGE  
 SNAKE R NR MORAN, WY  
 + JACKSON LAKE (STORAGE CHANGE)  
 PALISADES RESERVOIR INFLOW, ID  
 + SNAKE R NR IRWIN, ID  
 + JACKSON LAKE (STORAGE CHANGE)  
 + PALISADES RESV (STORAGE CHANGE)

SNAKE R NR HEISE, ID  
 + JACKSON LAKE (STORAGE CHANGE)  
 + PALISADES RESV (STORAGE CHANGE)  
 SNAKE R NR BLACKFOOT, ID  
 + PALISADES RESV (STORAGE CHANGE)  
 + JACKSON LAKE (STORAGE CHANGE)  
 + DIV FM SNAKE R BTW HEISE AND SHELLY GAGES  
 + DIV FM SNAKE R BTW SHELLY AND BLACKFT, ID  
 PORTNEUF R AT TOPAZ, ID - No Corrections  
 AMERICAN FALLS RESERVOIR INFLOW, ID  
 + ALL CORRECT MADE FOR HENRYS FK NR REXBURG, ID  
 + JACKSON LAKE (STORAGE CHANGE)  
 + PALISADES RESV (STORAGE CHANGE)  
 + DIV FM SNAKE R BTW HEISE AND SHELLY GAGES  
 + DIV FM SNAKE R BTW SHELLY AND BLACKFT GAGES

#### Southside Snake River Basins

OAKLEY RESERVOIR INFLOW, ID  
 + GOOSE CK ABV TRAPPER CK NR OAKLEY, ID  
 + TRAPPER CK NR OAKLEY, ID  
 SALMON FALLS CK NR SAN JACINTO, NV - No Corrections  
 BRUNEAU R NR HOT SPRINGS, ID - No Corrections  
 OWYHEE R NR GOLD CK, NV  
 + WILDHORSE RESV (STORAGE CHANGE)  
 OWYHEE R NR OWYHEE, NV  
 + WILDHORSE RESV (STORAGE CHANGE)  
 OWYHEE R NR ROME, OR  
 + WILDHORSE RESV (STORAGE CHANGE)  
 + JORDAN VALLEY RESV (STORAGE CHANGE)  
 OWYHEE RESERVOIR INFLOW, OR  
 + OWYHEE R BLW OWYHEE DAM, OR  
 + OWYHEE RESV (STORAGE CHANGE)  
 + DIV TO NORTH AND SOUTH CANALS  
 SUCCOR CK NR JORDAN VALLEY, OR - No Corrections  
 SNAKE R - KING HILL, ID - No Corrections  
 SNAKE R NR MURPHY, ID - No Corrections  
 SNAKE R AT WEISER, ID - No Corrections  
 SNAKE R AT HELLS CANYON DAM, ID  
 + BROWNLEE RESV (STORAGE CHANGE)

#### Bear River Basin

BEAR R NR RANDOLPH, UT  
 + SULPHUR CK RESV (STORAGE CHANGE)  
 + CHAPMAN CANAL DIVERSION  
 + WOODRUFF NARROWS RESV (STORAGE CHANGE)  
 SMITHS FORK NR BORDER, WY - No Corrections  
 THOMAS FORK NR WY-ID STATELINE - No Corrections (Disc)  
 BEAR R BLW STEWART DAM, ID  
 + SULPHUR CK RESV (STORAGE CHANGE)  
 + CHAPMAN CANAL DIVERSION  
 + WOODRUFF NARROWS RESV (STORAGE CHANGE)  
 + DINGLE INLET CANAL  
 + RAINBOW INLET CANAL

MONTPELIER CK AT IRR WEIR NR MONTPELIER, ID (Disc)  
 + MONTPELIER CK RESV (STORAGE CHANGE)  
 CUB R NR PRESTON, ID - No Corrections

**RESERVOIR CAPACITY DEFINITIONS** (Units in 1,000 acre-feet, KAF) (Revised October 1998)  
 Different agencies use various definitions when reporting reservoir capacity and contents. Reservoir storage terms include dead, inactive, active, and surcharge storage. The table below lists these volumes for each reservoir in this report, and defines the storage volumes that NRCS uses when reporting capacity and current reservoir storage. In most cases, NRCS reports usable storage, which includes active and inactive storage.

BASIN/ RESERVOIR	DEAD STORAGE	INACTIVE STORAGE	ACTIVE STORAGE	NRCS SURCHARGE STORAGE	NRCS CAPACITY INCLUDES
<b>PANHANDLE REGION</b>					
HUNGRY HORSE	39.73	--	3451.00	--	3451.0 ACTIVE
FLATHEAD LAKE	Unknown	--	1791.00	--	1791.0 ACTIVE
NOXON RAPIDS	Unknown	--	335.00	--	335.0 ACTIVE
PEND OREILLE	406.20	112.40	1042.70	--	1561.3 DEAD+INACTIVE+ACTIVE
COEUR D'ALENE	--	13.50	225.00	--	238.5 INACTIVE+ACTIVE
PRIEST LAKE	20.00	28.00	71.30	--	119.3 DEAD+INACTIVE+ACTIVE
<b>CLEARWATER BASIN</b>					
DWORSHAK	--	1452.00	2016.00	--	3468.0 INACTIVE+ACTIVE
<b>WEISER/BOISE/PAYETTE BASINS</b>					
MANN CREEK	1.61	0.24	11.10	--	11.1 ACTIVE
CASCADE	--	50.00	653.20	--	703.2 INACTIVE+ACTIVE
DEADWOOD	1.50	--	161.90	--	161.9 ACTIVE
ANDERSON RANCH	29.00	41.00	423.18	--	464.2 INACTIVE+ACTIVE
ARROWROCK	--	--	286.60	--	286.6 ACTIVE
LUCKY PEAK	--	28.80	264.40	13.80	293.2 INACTIVE+ACTIVE
LAKE LOWELL	--	8.00	169.10	--	177.1 INACTIVE+ACTIVE
<b>WOOD/LOST BASINS</b>					
MAGIC	--	--	191.50	--	191.5 ACTIVE
LITTLE WOOD	--	--	30.00	--	30.0 ACTIVE
MACKAY	0.13	--	44.37	--	44.4 ACTIVE
<b>UPPER SNAKE BASIN</b>					
HENRYS LAKE	--	--	90.40	--	90.4 ACTIVE
ISLAND PARK	0.40	--	127.30	7.90	135.2 ACTIVE+SURCHARGE
GRASSY LAKE	--	--	15.18	--	15.2 ACTIVE
JACKSON LAKE	--	--	847.00	--	847.0 ACTIVE
PALISADES	44.10	155.50	1200.00	--	1400.0 DEAD+INACTIVE+ACTIVE
RIRIE	4.00	6.00	80.54	10.00	80.5 ACTIVE
BLACKFOOT	--	--	348.73	--	348.7 ACTIVE
AMERICAN FALLS	--	--	1672.60	--	1672.6 ACTIVE
<b>SOUTHSIDE SNAKE BASINS</b>					
OAKLEY	--	--	74.50	--	74.5 ACTIVE
SALMON FALLS	48.00	--	182.65	--	182.6 ACTIVE
WILDHORSE	--	--	71.50	--	71.5 ACTIVE
OWYHEE	406.83	--	715.00	--	715.0 ACTIVE
BROWNLEE	0.45	444.00	975.30	--	1419.3 INACTIVE+ACTIVE
<b>BEAR RIVER BASIN</b>					
WOODRUFF NARROWS	--	1.50	57.30	--	57.3 ACTIVE
WOODRUFF CREEK	--	4.00	4.00	--	4.0 ACTIVE
BEAR LAKE	--	--	1421.00	--	1421.0 ACTIVE
MONTPELIER CREEK	0.21	--	3.84	--	4.0 DEAD+ACTIVE

# Interpreting Streamflow Forecasts

## Introduction

Each month, five forecasts are issued for each forecast point and each forecast period. Unless otherwise specified, all streamflow forecasts are for streamflow volumes that would occur naturally without any upstream influences. Water users need to know what the different forecasts represent if they are to use the information correctly when making operational decisions. The following is an explanation of each of the forecasts.

**Most Probable (50 Percent Chance of Exceeding ) Forecast.** This forecast is the best estimate of streamflow volume that can be produced given current conditions and based on the outcome of similar past situations. There is a 50 percent chance that the streamflow volume will exceed this forecast value. There is a 50 percent chance that the streamflow volume will be less than this forecast value.

The most probable forecast will rarely be exactly right, due to errors resulting from future weather conditions and the forecast equation itself. This does not mean that users should not use the most probable forecast; it means that they need to evaluate existing circumstances and determine the amount of risk they are willing to take by accepting this forecast value.

## To Decrease the Chance of Having Too little Water

If users want to make sure there is enough water available for their operations, they might determine that a 50 percent chance of the streamflow volume being lower than the most probable forecast is too much risk to take. To reduce the risk of not having enough water available during the forecast period, users can base their operational decisions on one of the forecasts with a greater chance of being exceeded (or possibly some point in-between). These include:

**70 Percent Chance of Exceeding Forecast.** There is a 70 percent chance that the streamflow volume will exceed this forecast value.

There is a 30 percent chance the streamflow volume will be less than this forecast value.

**90 Percent Chance of Exceeding Forecast.** There is a 90 percent

chance that the streamflow volume will exceed this forecast value.

There is a 10 percent chance the streamflow volume will be less than this forecast value.

## To Decrease the Chance of Having Too much Water

If users want to make sure they don't have too much water, they might determine that a 50 percent chance of the streamflow being higher than the most probable forecast is too much of a risk to take. To reduce the risk of

having too much water available during the forecast period, users can base their operational decisions on one of the forecasts with a smaller chance of being exceeded. These include:

**30 Percent Chance of Exceeding Forecast.** There is a 30 percent chance that the streamflow volume will exceed this forecast value. There is a 70 percent chance the streamflow volume will be less than this forecast value.

**10 Percent Chance of Exceeding Forecast.** there is a 10 percent chance that the streamflow volume will exceed this forecast value. There is a 90 percent chance the streamflow volume will be less than this forecast value.

Using the forecasts - an example

**Using the Most Probable Forecast.** Using the example forecasts shown below, users can reasonably expect 36,000 acre-feet to flow past the gaging station on the Mary's River near Death between March 1 and July 31.

**Using the Higher Exceedence Forecasts.** If users anticipate a somewhat drier trend in the future (monthly and seasonal weather outlooks are available from the National Weather Service every two weeks), or if they are operating at a level where an unexpected shortage of water could cause problems, they might want to plan on receiving only 20,000 acre-feet (from the 70 percent chance of exceeding forecast). In seven out of ten years with similar conditions, streamflow volumes will exceed the 20,000 acre-foot forecast.

If users anticipate extremely dry conditions for the remainder of the season, or if they determine the risk of using the 70 percent chance of exceeding forecast is too great, then they might plan on receiving only 5000 acre-feet (from the 90 percent chance of exceeding forecast). Nine out of ten years with similar conditions, streamflow volumes will exceed the 5000 acre-foot forecast.

**Using the Lower Exceedence Forecasts.** If users expect wetter future conditions, or if the chance that five out of every ten years with similar conditions would produce streamflow volumes greater than 36,000 acre-feet was more than they would like to risk, they might plan on receiving 52,000 acre-feet (from the 30 percent chance of exceeding forecast) to minimize potential flooding problems. Three Out of ten years with similar conditions, streamflows will exceed the 52,000 acre-foot forecast.

In years when users expect extremely wet conditions for the remainder of the season and the threat of severe flooding and downstream damage exists, they might choose to use the 76,000 acre-foot (10 percent chance of exceeding) forecast for their water management operations. Streamflow volumes will exceed this level only one year out of ten.

WEISER, PAYETTE, BOISE RIVER BASINS  
Streamflow Forecasts

Forecast Point	Forecast Period	<===== Drier =====>			Future Conditions			Wetter =====>		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SF PAYETTE RIVER at Lowman	APR-JUL	329	414	471	528	613	432	528	613	432
	APR-SEP	369	459	521	583	673	488	583	673	488
BOISE RIVER near Twin Springs (1)	APR-JUL	443	610	685	760	927	631	760	927	631
	APR-SEP	495	670	750	830	1005		830	1005	

For more information concerning streamflow forecasting ask your local NRCS field office for a copy of 'A Field Office Guide for Interpreting Streamflow Forecasts'.



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*Issued by*

**Pearlie S. Reed**  
**Chief**  
**Natural Resources Conservation Service**  
**U.S. Department of Agriculture**

*Released by*

**Luana E. Kiger**  
**State Conservationist**  
**Natural Resources Conservation Service**  
**Boise, Idaho**

*Prepared by*

**Snow Survey Staff**  
**Ron T. Abramovich, Water Supply Specialist**  
**Philip S. Morrisey, Hydrologist**  
**Bill J. Patterson, Electronics Technician**  
**Jeff T. Graham, Electronics Technician**

